

**Practice: 578 - Stream Crossing****Scenario: #4 - Culvert installation****Scenario Description:**

Install a new culvert. Work includes dewatering, site preparation and removing any old crossing, acquiring and installing culvert pipe with gravel bedding and fill (compacted), and building headwalls. If a different travel surface is needed, refer to another appropriate standard for the surfacing. 30 inch Culvert installation with <75 cy of fill needed and < 2 yds rock riprap for headwalls. Pipe is 40 feet long. Use (396) Aquatic Organism Passage instead, when the primary intent is biological concerns, not hydrologic. Use (587) Structure for Water Control instead, for ditch cross culverts and other intermittent flows.

**Before Situation:**

Water flow could not cross access road or trail without erosion; or access road or trail could not cross channel.

**After Situation:**

Access road and waterflow are able to cross each other in a stable manner. Stream flow is not impeded and a stable base exists for equipment, people and/or animals to cross. Associated practices could be (342) Critical Area Planting, (560) Access Road, (575) Animal Trails and Walkways, (566) Recreational Trails and Walkways, (500) Obstruction Removal, or (584) Channel Stabilization.

**Scenario Feature Measure: Culvert****Scenario Unit: Inch-Foot****Scenario Typical Size: 1,200****Scenario Cost: \$4,033.81****Scenario Cost/Unit: \$3.36****Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Earthfill, Manually Compacted	50	Earthfill, manually compacted, includes equipment and labor	Cubic yard	\$4.59	3	\$13.77
Hydraulic Excavator, 1 CY	931	Track mounted hydraulic excavator with bucket capacity range of 0.8 to 1.5 CY. Equipment and power unit costs. Labor not included.	Hour	\$111.43	10	\$1,114.30
<b>Labor</b>						
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$23.79	10	\$237.90
<b>Materials</b>						
Pipe, HDPE, CPT, Double Wall, Soil Tight, 30"	1247	Pipe, Corrugated HDPE Double Wall, 30" diameter with soil tight joints - AASHTO M294. Material cost only.	Foot	\$27.47	40	\$1,098.80
Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	\$23.38	50	\$1,169.00
Rock Riprap, Placed with geotextile	44	Rock Riprap, placed with geotextile, includes materials, equipment and labor to transport and place	Cubic yard	\$75.12	2	\$150.24
<b>Mobilization</b>						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$249.80	1	\$249.80